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EXAMINER

ZALASKY, KATHERINE M

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/592,021	Applicant(s) BELLARA, SANJAY	
	Examiner KATHERINE ZALASKY	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20070815</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. **Claim 23** is objected to under 37 CFR 1.75(c) as being of improper dependent form because it depends from itself. See MPEP § 608.01(n). Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. For the purpose of this Office action said claim has been treated as if depending from **claim 22** since **claim 22** is the closest claim providing proper antecedent basis for the rigid member of **claim 23**. Appropriate correction is required

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

4. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “permeable or semi-permeable membrane” in **claim 1** is used by the claim to mean “a porous element”, while the accepted meaning is “a skin-like thin film allowing at least one constituent to pass through.” The term is indefinite because the specification does not clearly redefine the term. The definition of “a porous element” has been assumed since Applicant states in the specification that the membrane may be a filter element or a metal wire mesh. While a

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membrane is generally treated as a species of filtration elements, a filter and especially a wire mesh are generally not considered to be "membranes". For the purpose of examination, the recitation of "permeable or semi-permeable membrane" in the claim will be interpreted as a "porous element". Appropriate correction is required.

5. **Claim 35** recites the limitation "said plate filter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

6. The recitation of "according to the method as claimed in any preceding claim" in lines 3-4 of **claim 37** renders the claim indefinite because claim 37 is an independent claim. Therefore, there are no preceding claims. It is suggested that the Applicant include the required elements or steps for "reducing the volume of said solid/liquid dispersion or suspension" in the claim or leave it as a generic statement.

7. **Claim 44** recites the limitation "the residue" in line 1. There is insufficient antecedent basis for this limitation in the claim.

8. **Claim 45** is indefinite because it is unclear what is meant by "the method as claimed in claim 37 whenever applied to the treatment of Intermediate Liquid Waste in the nuclear industry". It appears that the claim is trying to state "...wherein the solid/liquid dispersion or suspension is intermediate liquid waste in the nuclear industry". Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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10. **Claims 1-4, 6-8, 10-15, 21-23, 25-28, 30-31 and 24** are rejected under 35 U.S.C. 102(b) as being anticipated by Maffet (US 4,244,287).

Regarding **claim 1**, Maffet discloses a method for the reduction of the volume of solid/liquid dispersion or suspension (abstract), said method comprising the steps of:

- (a) providing a receptacle comprising at least one permeable or semi-permeable membrane (C6/L28-35, C6/L48-51, C7/L18-23)
- (b) introducing said solid/liquid dispersion or suspension into said receptacle (C6/L28-35, C6/L48-51, C7/L24-27)
- (c) applying a mechanical force so as to substantially expel said liquid and compact the solid residue (C6/L56-66, C7/L27-47)

wherein said mechanical force comprises the application of pressure to said solid/liquid dispersion or suspension by means of at least one solid mechanical member, and wherein the magnitude of said pressure being increased during the process (C6/L56-66, C7/L27-47).

Regarding **claims 2-4 and 6-7**, Maffet discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said solid/liquid dispersion or suspension comprises a slurry of a solid material (C1/L39-44)
- said slurry comprises an aqueous slurry (C1/L39-44)
- said solid/liquid dispersion comprises a waste material (C1/L39-44)
- wherein said receptacle comprises a cylindrical container (C7/L18-23)
- wherein said cylindrical container comprises a barrel (C7/L18-23, note that “barrel” has been interpreted with its broadest reasonable definition, a cylindrical container)

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Regarding **claims 8 and 10-12**, Maffet discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said permeable or semi-permeable membrane comprises a filter (C6/L28-35, C6/L68-C7/L8, C7/L24-36)
- said permeable or semi-permeable membrane is integrated into the surface of the receptacle (C6/L28-35, C6/L68-C7/L8, C7/L24-36)
- wherein said permeable or semi-permeable membrane is comprised in the base of said receptacle (C6/L28-35, C6/L68-C7/L8, C7/L24-36)
- said permeable or semi-permeable membrane is additionally comprised in the top and/or sides of said receptacle (C6/L28-35, C6/L68-C7/L8, C7/L24-36)

Regarding **claims 13-15**, Maffet discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said application of a mechanical force to substantially expel said liquid from said receptacle and compact said solid residue provides an increase in the pressure applied to said solid/liquid dispersion or suspension (C7/L24-47)
- said increase in the pressure applied to said solid/liquid dispersion or suspension is achieved gradually by the action of at least one solid mechanical member on said dispersion or suspension (C7/L24-47)
- wherein said at least one mechanical member comprises at least one inflatable member located within said receptacle (C7/L24-47)

Regarding **claims 21-23 and 25-28**, Maffet discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said mechanical force is applied to the top of the receptacle (C7/L24-36)
- said mechanical force is applied by the action of a rigid member (C7/L24-36)

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- said rigid member comprises a piston or hydraulic ram (C7/L24-36)
- said rigid member includes holes or grooves adapted to further facilitate the egress of liquor from the system (C7/L24-36)
- the pressure applied to the solid/liquid dispersion or suspension is in the region of 5-200 bar (C6/L62-66, 500-1500 psi, approx. 34-103 bar)
- said pressure is in the region of 10-50 bar (C6/L62-66, above 500-1500 psi, approx. 34-103 bar)
- an initial pressure in the region of 5-20 bar is applied to said solid/liquid dispersion, and said pressure is increased to a level of 100-200 bar (first zone, about 7 bar, C9/L21-23, to second zone, at least 134 bar, C6/L64-66, C10/L33-34)

Regarding **claims 30-31 and 34**, Maffet discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- further permeable or semi-permeable membranes are comprised inside said receptacle (C7/L24-36, piston head which moves into said receptacle may be perforated)
- said further permeable or semi-permeable membranes are provided by means of a plate filter (C7/L24-36, piston head which moves into said receptacle may be perforated)
- means are provided for the removal of liquor which has been filtered through said further permeable or semi-permeable membranes (Figure 3, line 22)

11. **Claims 37-40 and 44-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Robinson et al. (WO 97/13254).**

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Regarding **claim 37**, Robinson et al. discloses a method for the reduction of the volume of solid/liquid dispersion or suspension, said method comprising the steps of:

- (a) reducing the volume of said solid/liquid dispersion or suspension (pg 23/¶2, containers being compacted came from drying stages)
- (b) compacting the receptacle by the application of a further mechanical force (pg 19/¶1)

Regarding **claims 38-40**, Robinson et al. discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said further mechanical force comprises very high pressure (pg 19/¶1)
- said further mechanical force is applied by the direct mechanical action of at least one solid mechanical member (pg 19/¶1, Figure 1)
- wherein said at least one solid mechanical member comprises a hammer, piston or hydraulic ram (pg 19/¶1, Figure 1)

Regarding **claims 44-45**, Robinson et al. discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- the residue is subsequently dispatched for storage or disposal (pg 3/¶2)
- wherein the method is applied to the treatment of Intermediate Liquid Waste in the nuclear industry (pg 4/¶2)

12. **Claims 1-8, 30-32 and 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Homer (US 4,836,937).**

Regarding **claim 1**, Homer discloses a method for the reduction of the volume of solid/liquid dispersion or suspension, said method comprising the steps of:

- (a) providing a receptacle comprising at least one permeable or semi-permeable membrane (Figure 1, C3/L42-50, C8/L11-45)

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(b) introducing said solid/liquid dispersion or suspension into said receptacle (C7/L6-15)

(c) applying a mechanical force so as to substantially expel said liquid and compact the solid residue (C7/L51-C8/L6)

wherein said mechanical force comprises the application of pressure to said solid/liquid dispersion or suspension by means of at least one solid mechanical member, and wherein the magnitude of said pressure being increased during the process (C7/L51-C8/L6).

Regarding **claims 2-8**, Homer discloses all of the claim limitations as set forth above.

Additionally, the reference discloses the method wherein:

- said solid/liquid dispersion or suspension comprises a slurry of a solid material (abstract)
- said slurry comprises an aqueous slurry (abstract)
- said solid/liquid dispersion comprises a waste material (abstract)
- said waste material comprises a waste material generated in the nuclear industry (abstract)
- said receptacle comprises a cylindrical container (Figure 1, C3/L42-50)
- said cylindrical container comprises a barrel (Figure 1, C3/L42-50)
- said permeable or semi-permeable membrane comprises a filter

Regarding **claims 30-32 and 34-35**, Homer discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein

- further permeable or semi-permeable membranes are comprised inside said receptacle (Figures 5 & 6, C8/L11-45)
- said further permeable or semi-permeable membranes are provided by means of a plate filter (Figures 5-7, C8/L11-45, filter fabric surrounds a grid structure where

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liquid flows into grid and out via hose 160, filter is supported by frame 152, welded onto the bottom of the vessel)

- said plate filter comprises an internal cavity and surfaces comprising permeable or semi-permeable membranes (Figures 5-7, C8/L11-45, filter fabric surrounds a grid structure where liquid flows into grid and out via hose 160, filter is supported by frame 152, welded onto the bottom of the vessel, C4/L47-64)
- means are provided for the removal of liquor which has been filtered through said further permeable or semi-permeable membranes (Figures 5-7, C8/L11-45, filter fabric surrounds a grid structure where liquid flows into grid and out via hose 160)
- said means for the removal of said liquor comprise hoses which are attached to said plate filter such that the expressed liquor may be directed away from said internal cavity (Figures 5-7, C8/L11-45, filter fabric surrounds a grid structure where liquid flows into grid and out via hose 160)

13. **Claims 1-4, 8, 13, 14, 26, 29, 30 and 34** are rejected under 35 U.S.C. 102(b) as being anticipated by Macrae (US 5,173,196).

Regarding **claim 1**, Macrae discloses a method for the reduction of the volume of solid/liquid dispersion or suspension (abstract), said method comprising the steps of:

- (a) providing a receptacle comprising at least one permeable or semi-permeable membrane (C2/L3-21, Figure 1)
- (b) introducing said solid/liquid dispersion or suspension into said receptacle (C2/L3-21)
- (c) applying a mechanical force so as to substantially expel said liquid and compact the solid residue (C2/L44-C3/L7)

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wherein said mechanical force comprises the application of pressure to said solid/liquid dispersion or suspension by means of at least one solid mechanical member, and wherein the magnitude of said pressure being increased during the process (C2/L44-C3/L7).

Regarding **claims 2-4 and 8**, Macrae discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said solid/liquid dispersion or suspension comprises a slurry of a solid material (C1/L15-56)
- said slurry comprises an aqueous slurry (C1/L15-56)
- said solid/liquid dispersion comprises a waste material (C1/L15-56)
- said permeable or semi-permeable membrane comprises a filter (C2/L13-30)

Regarding **claims 13 and 14**, Macrae discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said application of a mechanical force to substantially expel said liquid from said receptacle and compact said solid residue provides an increase in the pressure applied to said solid/liquid dispersion or suspension (C2/L44-C3/L7)
- said increase in the pressure applied to said solid/liquid dispersion or suspension is achieved gradually by the action of at least one solid mechanical member on said dispersion or suspension (C2/L44-C3/L7)

Regarding **claims 26, 29, 30 and 34**, Macrae discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- the pressure applied to the solid/liquid dispersion or suspension is in the region of 5-200 bar (C5/L68-C6/L5, 10 psi to 6000 psi, 0.6-413 bar)
- a pressure of 300 bar is applied to achieve maximum compaction (C5/L68-C6/L5, 10 psi to 6000 psi, 0.6-413 bar)

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- further permeable or semi-permeable membranes are comprised inside said receptacle (C4/L22-34, Figure 1)
- means are provided for the removal of liquor which has been filtered through said further permeable or semi-permeable membranes (C2/L44-47)

14. **Claims 1-4, 6-10 and 13-19** are rejected under 35 U.S.C. 102(b) as being anticipated by Young (US 4,795,570).

Regarding **claim 1**, Young discloses a method for the reduction of the volume of solid/liquid dispersion or suspension, said method comprising the steps of:

- (a) providing a receptacle comprising at least one permeable or semi-permeable membrane (Figure 1, filter 74)
- (b) introducing said solid/liquid dispersion or suspension into said receptacle (C6/L56-C7/L11)
- (c) applying a mechanical force so as to substantially expel said liquid and compact the solid residue (C6/L56-C7/L11)

wherein said mechanical force comprises the application of pressure to said solid/liquid dispersion or suspension by means of at least one solid mechanical member, and wherein the magnitude of said pressure being increased during the process (Figure 1, C6/L56-C7/L11).

Regarding **claims 2-4 and 6-7**, Young discloses all of the claim limitations as set forth above. Additionally, the reference discloses the method wherein:

- said solid/liquid dispersion or suspension comprises a slurry of a solid material (C6/L56-C7/L11, C1/L5-12)
- said slurry comprises an aqueous slurry (C6/L56-C7/L11, C1/L5-12)
- said solid/liquid dispersion comprises a waste material (C6/L56-C7/L11, C1/L5-12)

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- wherein said receptacle comprises a cylindrical container (Figure 1, C6/L56-C7/L11)
- wherein said cylindrical container comprises a barrel (Figure 1, C6/L56-C7/L11, note that “barrel” has been interpreted with its broadest reasonable definition, a cylindrical container)

Regarding **claims 8-10**, Young discloses all of the claim limitations as set forth above.

Additionally, the reference discloses the method wherein:

- said permeable or semi-permeable membrane comprises a filter (Figure 1, 74, C6/L12-17)
- said filter comprises a woven metal mesh material (C6/L12-17)
- said permeable or semi-permeable membrane is integrated into the surface of the receptacle (Figure 1, 74, C6/L12-17)

Regarding **claims 13-19**, Young discloses all of the claim limitations as set forth above.

Additionally, the reference discloses the method wherein:

- said application of a mechanical force to substantially expel said liquid from said receptacle and compact said solid residue provides an increase in the pressure applied to said solid/liquid dispersion or suspension (C6/L56-C7/L11)
- said increase in the pressure applied to said solid/liquid dispersion or suspension is achieved gradually by the action of at least one solid mechanical member on said dispersion or suspension (C6/L56-C7/L11)
- said at least one mechanical member comprises at least one inflatable member located within said receptacle (C6/L56-C7/L11)
- said at least one inflatable member comprises at least one air bag (C6/L56-C7/L11)

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- said at least one inflatable member is inflated by the ingress of compressed air (C6/L56-C7/L11)
- said at least one inflatable member additionally comprises at least one rigid member (Figure 1, bladder 32, sealing member 54, plate 46, C5/L3-42)
- said at least one rigid member comprises at least one base plate (Figure 1, bladder 32, sealing member 54, plate 46, C5/L3-42)

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Maffet (US 4,244,287), as applied to **claims 1 and 21-23** above.

Regarding **claim 24**, Maffet discloses all of the claim limitations as set forth above. While the reference does not explicitly disclose that said rigid member is comprised of metal, it is well known in the art that hydraulic presses can be formed from metal (as evidenced by WO 97/13254). Additionally, one of ordinary skill in the art would recognize that metal would be an

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appropriate choice for the rigid member due to the requirement for the rigid member to exert high pressures on the waste material and the durability of metal.

18. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Young (US 4,795,570), as applied to **claims 1, 13-15 and 18-19** above.

Regarding **claim 20**, Young discloses all of the claim limitations as set forth above. Additionally, while the reference does not explicitly disclose that the at least one base plate is comprised of metal, the reference does state that the internal container (to which the base plate serves as a lid) may be formed from metal or impermeable plastic (C4/L39-42).

It would have been obvious to one having ordinary skill in the art at the time of the invention to choose metal to form the upper plate in the method of Young since doing so amounts to nothing more than a choice from a finite number of identified, known materials to achieve a predictable result.

19. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Homer (US 4,836,937), as applied to **claims 1 and 30-31** above, and further in view of Young (US 4,795,570).

Regarding **claim 33**, Homer discloses all of the claim limitations as set forth above. While Homer discloses the method wherein said plate filter comprises a disc comprised of metal and having an internal cavity, wherein the top and bottom of said disc are permeable (Figures 5-7, C8/L11-45, filter fabric surrounds a grid structure where liquid flows into grid and out via hose 160, filter is supported by frame 152, welded onto the bottom of the vessel, C4/L47-64), the reference does not disclose that the plate filter comprises metal filter media. Rather, the reference discloses a fabric covering of porous material, providing polypropylene as an example (C4/L56-61).

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Young discloses another type of device and method for pressure filtration of slurries (abstract). The reference teaches that nature of the filter material in these devices depends on the liquid-solid mixture being treated, stating that success has been experienced using filters of woven mesh material wherein the mesh is either plastic or metal fiber (C6/L8-17).

It would have been obvious to one having ordinary skill in the art at the time of the invention to choosing either a metal filter material in the method of Homer instead of a plastic filter material, as taught by Young, since doing so amounts to nothing more than the choice between a finite number of identified, predictable solutions for appropriate filter materials. Additionally, it would have been obvious to one having ordinary skill in the art to look to other possible filter media depending on the liquid-solid mixture being treated in Homer, as taught by Young, since doing so amounts to nothing more than the routine optimization of a device used to carry out a known process.

20. **Claim 36** is rejected under 35 U.S.C. 103(a) as being unpatentable over Homer (US 4,836,937), as applied to **claims 1, 30 and 34-35** above, and further in view of Barres (US 4,790,882), Larsen (US 5,248,429) or Killilea et al. (US 5,062,334).

Regarding **claim 36**, Homer discloses all of the claim limitations as set forth above. While the reference discloses that hoses are used to remove the filtrate with suction (C8/L11-36), Homer does not disclose any details regarding the tubing material. Particularly, the reference does not disclose that said hoses comprise reinforced metal hoses.

Barres discloses supply tubing in a filtration system which may comprise a flexible hose which is reinforced with metal cladding for strength (C4/L23-30).

Larson discloses a filtration system having tubing for transferring fluids (abstract). The reference teaches that the tubing may be formed from any suitable material, including plastic, metal or fiber reinforced materials (C9/L42-50).

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Killilea et al. discloses tubing used in conjunction with a vacuum/suction device for drawing fluids (abstract). The reference discloses that it is best to use rigid material, such as a metal reinforced tube, in order to prevent collapse of the tube due to the vacuum (C5/L13-18).

It would have been obvious to one having ordinary skill in the art at the time of the invention to use a metal-reinforced hose for the filtrate removal tubing in the method of Homer, as taught by Barres, Larson, or Killilea et al., since doing so will provide a stronger tube and will help prevent the collapse of the tubing when under vacuum pressure. Additionally, it would have been obvious to one having ordinary skill in the art to choose a metal-reinforced hose from a finite number of identified, predictable solutions for tubing in filtration systems.

21. **Claims 41-43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al. (WO 97/13254), as applied to **claim 37** above, and further in view of Mallory et al. (US 4,681,706).

Regarding **claims 41-43**, Robinson et al. discloses all of the claim limitations as set forth above. However, the reference is silent as to the amount of compaction force applied in order to crush the drum. Specifically, the reference does not disclose the method wherein a compaction force of several hundreds of tons is applied to achieve maximum compaction of the receptacle, wherein said compaction force is 200-2000 tons or wherein said compaction force is 1000- 2000 tons.

Mallory et al. discloses a method of crushing barrels containing nuclear waste wherein a compaction force of 500 to 1,100 tons is applied to drums (C8/L59-68). The reference states that there are three particular advantages to using a compaction force in this range (1) the reduction in volume of the drum allows many more of them to packed inside a larger module for storage, (2) the use of such high force deforms the steel in the drums which eliminates the possibility of the drum springing back to a larger shape and (3) the extreme compaction renders

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the solid materials inside resistant to the absorption of water, which in turn makes them less prone to leach radioactive material (C8/L68-C9/L35).

It would have been obvious to one having ordinary skill in the art at the time of the invention to use a compaction force of 500 to 1,000 tons in the method of Robinson et al. in order to crush the drums containing radioactive waste, as taught by Mallory et al., since doing so will drastically reduce the volume of the drum for easier storage, eliminate the possibility of the drum "springing back" to a larger form, and also helps ensure that the radioactive material inside will not leach out of the compacted drum.

Conclusion

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHERINE ZALASKY whose telephone number is (571) 270-7064. The examiner can normally be reached on 7:30am - 6:00pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Krishnan S Menon/
Primary Examiner, Art Unit 1797

/KZ/
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